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ABSTRACT

The Heard Museum (Phoenix, Arizona) has developed and updated an integrated curriculum for use in grades K-3. The goals for this curriculum are to: (1) share museum resources with schools; (2) promote cross-cultural understanding through a focus on rain, a universal requirement for life; (3) help students understand that Native Americans are contemporary people maintaining identity and values in the modern world; (4) develop an awareness of the varied expressions of rain in the art, literature, and customs of the native people of the greater southwest; and (5) use culturally specific materials as a vehicle for developing essential skills, especially as they relate to the Arizona Student Assessment Program. The curriculum may be used in any order. This unit contains: (1) art prints of artifacts in the Heard Museum collection related to rain; (2) specific cultural information and materials relating to a particular Native American tribe or nation featured through the art prints this cultural information is the basis for some of the lessons in mathematics, science, and language skills; (3) mathematics lessons with a special emphasis on measuring and comparing; (4) science lessons, usually hands-on or observational units; (5) language skills, including reading, listening comprehension, writing, vocabulary, and poetry skills; and (6) art projects. (BT)

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DRYSPELL

# After the Rain:

**Heard Museum**
**2301 North Central Avenue**
**Phoenix, Arizona 85004-1323**

**http://www.heard.org/rain/rain_pdf_main.html**

**Updated 2001**

SO 035 098

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**Introduction**

The Heard Museum has developed this integrated curriculum for use in schools in grades K through 3. The overriding goals for this program are to:

- 1. Share museum resources with schools;
- 2. Promote cross-cultural understanding through a focus on rain, a universal requirement for life on earth;
- 3. Help students to understand that Native Americans are contemporary people maintaining identity and values in the modern world;
- 4. Develop an awareness of the varied expressions of rain in the art, literature and customs of the native peoples of the Greater Southwest;
- 5. Use culturally specific materials as a vehicle for developing essential skills, especially as they relate to the Arizona Student Assessment Program.

This curriculum is divided into six units that can be used in any order.

Each unit contains:

- 1. **Art Prints** of artifacts in the Heard Museum collection related to rain. While these prints are used for art history and aesthetics lessons, these artifacts are also used to begin lessons in math, science and language skills.
- 2. **Specific cultural information and materials** relating to a particular Native American tribe or nation featured through the art prints. This information includes a map, text from the RAIN exhibit applicable to the people, and other information of special interest to children. This cultural information is the basis for some of the lessons in math, science and language skills.
- 3. **Math lessons** with a special emphasis on measuring and comparing.
- 4. **Science lessons**, usually hands-on or observational units.
- 5. **Language skills**, including reading, listening comprehension, writing, vocabulary and poetry skills.
- 6. **Art projects**

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This K-3 curriculum was developed teachers by Arlene Old Elk (Dine') and Jackie Stoklas during a year-long residency at the Heard Museum, made possible by the Lila Wallace-Readers Digest Museum Accessibility Fund. Additional information was developed by the Heard Museum Education Department staff.

# Rain

The Southwest United States and Northwest Mexico exist in a rain shadow cast by mountain ranges to the west. Rainfall is light and undependable. There are two rainy seasons: summer and winter. Often, summer rains are brief and highly localized, as clouds suddenly boil up from the south in the afternoon and early evening. Winter storms come from the Pacific Ocean and may arrive in waves, soaking the ground. In higher elevations, the rain becomes snow. In between these two seasons are dry periods, when great care must be taken to ensure life and growth until the next rain.

The indigenous people of the Southwest welcome rain into their lives and land, praying for the blessing of rain through a variety of ceremonies and creative expressions. Many expressions of rain and water focus on rain's connection to making life and growth possible. Expressions may be enduring, such as embroidered figures on a ceremonial garment. Some are intended to be temporary, such as body paint on a ceremonial participant or the pigments of a sand painting. Other expressions take the form of music, song, oratory, poetry, and prayer.

For all of the cultures in this exhibit, rain has deep meanings that reflect a culture's unique experience with the universe. This deep spiritual relationship is far from the stereotype of the "Indian Rain Dance", or feeble jokes suggesting a superficial and simplistic magic.

As you look at specific designs or symbols, please remember that they are part of a whole and have meaning as part of that whole. Expressions of rain span centuries. Some of the forms change, but the intent of people to bring the blessings that come from rain into their lives and the world remains unchanged.

ARTS

# Calendar Sticks

**Activity**: Students create an individualized record of events that are important to them.

**Focus Activity**: Look at the art prints: "Niman Ceremony at Walpi Village" by Raymond Naha (Hopi). Discuss how each of the paintings record a specific event. Discuss with the class that events can be recalled visually (such as in the paintings), orally (by telling someone about the event) or documented (by writing about the event).

Discuss with students how a single symbol or picture can remind us of an event or a time of year. This is the idea behind the traditional O'odham calendar stick.

**Outcomes**:

1) Students will summarize events.

2) Through sharing their work, students will realize that not everyone thinks that the same things are important.

**Materials**: *flat, wood sticks (12"-18") or strips of poster board for each student, *markers

**Procedure**:

1) Talk about some familiar signs or symbols: a reindeer with a red nose; a shamrock; a cracked metal bell; etc.. Have the children realized that they know long and complicated stories and events, which they can remember and recite, merely from seeing these drawings.

2) Explain that O'odham people recorded events on calendar sticks using this same idea: pictures were drawn or carved on a flat stick, and people could remember all the details when they saw the drawing on the stick.

3) Have children create a drawing to mark an important event that happens each day: the event and the drawing should be individualized, not a group decision.

4) At the end of the week, have the children display and recite the meaning behind their calendar sticks.



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# Dry Spell

**Assessment:**

1) Do the children see that each person has individualized the events of the week?

2) Are some of the events the same? Why?

**Extension**: In the "Language" section of Dry Spell, there is a lesson called "My Diary." This calendar stick activity can be done in association with the writing project.



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# Earth Pigment Painting

**Activity**: Students paint using earth pigments.

**Focus Activity**: Look again at the art print "Awatovi Mural" by Pablita Velarde (Santa Clara). Review the information about how Velarde makes paint by grinding up rocks, clay and other natural materials.

**Objective**:

1) Students will develop an awareness of the many different colors of earth.

2) Students will create a painting using dirt as the medium.

*Note: If the criteria are written down and posted, they may be used for the assessment.*

**Vocabulary**: earth, pigment, powder, coat, detail, design

**Materials**: eye droppers; *contrasting colors of dirt or other materials that can be ground into a fine powder; *large, hand-sized rocks for crushing materials into a fine powder; *water; *white glue; 12 muffin tins (for use by one to four students); *paint brushes; *sturdy paper, card stock or tag board on which to paint; *pencils; *newsprint/newspaper

**Recipe for earth pigments**

- 1 part powdered earth
- 1 part white glue
- a few drops of water

Mix dirt with water to make a stiff paste.
Add glue.

**Procedure**:

1) Model mixing earth pigments to students. Note: the most common mistake is adding too much water. Using an eye dropper helps to eliminate this problem.



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2) Fold a piece of newsprint into quarters.

3) Draw a simple design that you might want to paint in earth pigments in each quarter.

4) Choose one of your designs.

5) Draw the design you chose on the sturdy paper.

6) Paint. Remember, it takes several coats. When the first one is dry, paint over it. When you have enough coats it will have a velvety look.

7) Clean the brush as soon as you finish. Warm water works best.

**Assessment**:

1) Ask the students to look at the criteria and decide if they followed it.

2) Do the students see a relationship between their design and using earth pigments? (While this does not reflect on the art product, it does give information about the students understanding of the focus lesson.)

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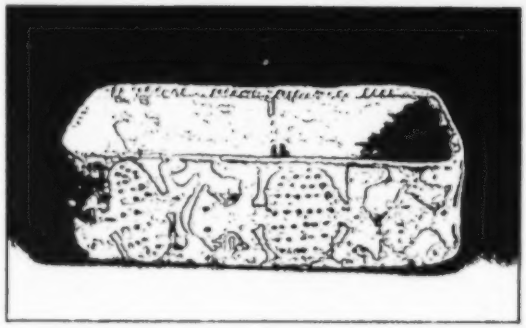
# Pottery

**Activity**: Students arrange designs on a pot.

**Focus Activity**: Look at the art print of the Red-on-buff Rectangular Box by an unknown Hohokam artist. Notice the red painted decoration. Then, read the story of the Hohokam potsherd.



**Outcomes**: Students will use prehistoric Hohokam designs to decorate a pot.

**Vocabulary**: Hohokam (ho-ho-KAHM), potsherd

**Materials**: Hohokam potsherd story, *photocopies of the pot shape for each student, *pencils/paint/markers, *examples of Hohokam designs cut up to look like potsherds

**Procedure**:

1) After reading the potsherd story, have each student imagine that he or she finds some potsherds: scatter the designs on the floor or table.

2) Have students take one or two "potsherds" and use the designs to create a new "pot."

3) Color the pots and create a display with the "potsherd" and the new "pot."

**Assessment**:

1) Did students use the "potsherd" design?

2) Did the students realize that the "potsherd" was only a fragment of the whole pot and use the design accordingly?

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# The Potsherd

A piece of a broken pot was left behind when the Hohokam moved to a new home.

The potsherd was sitting in the hot desert sun.

Sandstorm knew the sun would fade the beautiful decorations so it blew sand gently over the potsherd.

After many years the potsherd became lonely. He began to cry.

Sandstorm heard him crying and came to blow away the sand.

Then he brought Rain to wash away the dust.

After the rain, an O'odham potter walked by and saw the beautiful potsherd.

She smiled as she looked at it carefully. When she got home, she painted the same design on her own pot.

Now the potsherd is happy. He shared the beauty of his Hohokam makers of the past with his O'odham friends of today.

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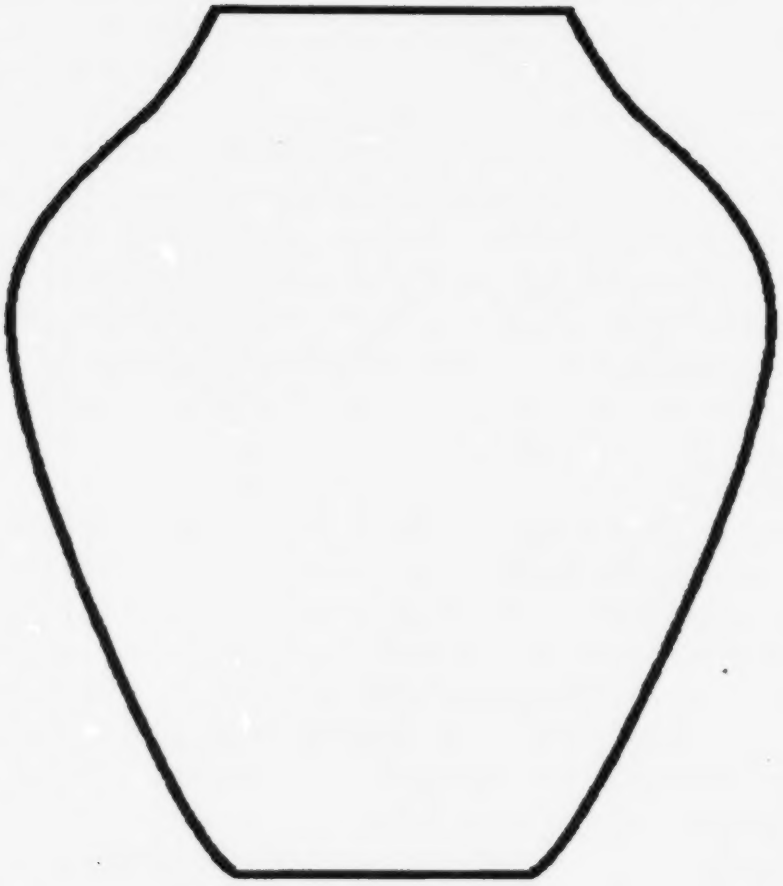
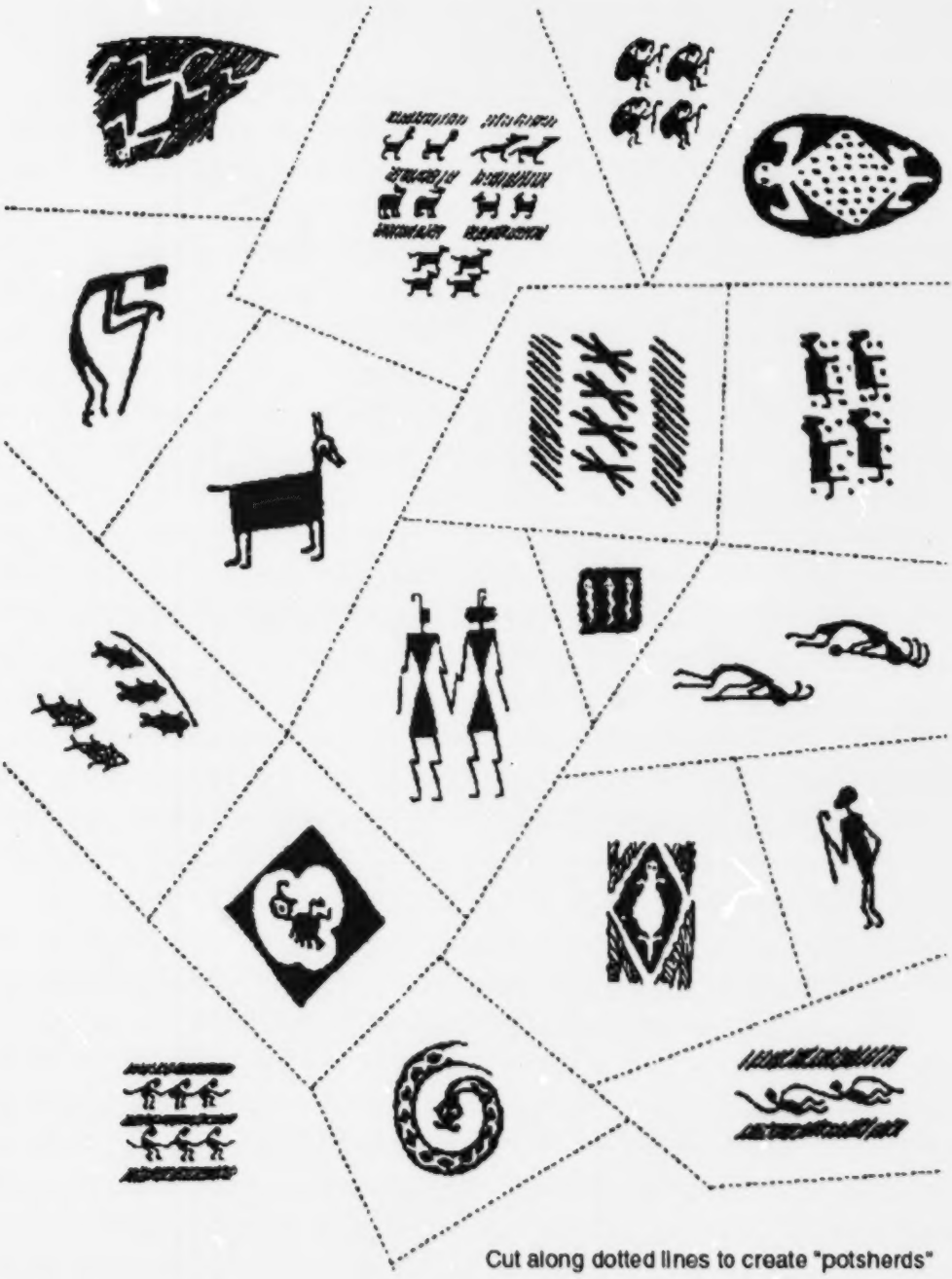


**This is the new pot I created using the designs on my potsherds.**

**My name is: _____**



Cut along dotted lines to create "potsherds"

CULTURAL

# Rain in the Southwest

The Southwest United States and Northwest Mexico exist in a rainshadow cast by mountain ranges to the west. Rainfall is light and undependable. There are two rainy seasons: summer and winter. Often, summer rains are brief and highly localized, as clouds suddenly boil up from the south in afternoon and early evening.

Winter storms come from the Pacific Ocean and may arrive in waves, soaking the ground. In higher elevations, the rain becomes snow. In between these two seasons are dry periods, when great care must be taken to ensure life and growth until the next rain.

The indigenous people of the Southwest welcome rain into their lives and land, praying for the blessing of rain through a variety of ceremonies and creative expressions. Many expressions of rain and water focus on rain's connection to making life and growth possible.

Expressions may be enduring, such as embroidered figures on a ceremonial garment. Some are intended to be temporary, such as body paint on a ceremonial participant or the pigments of a sandpainting. Other expressions take the form of music, song, oratory, poetry and prayer.

For all the cultures of the Southwest, rain has a deep meaning that reflects that culture's unique experience with the universe. This deep spiritual relationship is far from the stereotype of the "Indian Rain Dance," or feeble jokes suggesting a superficial and simplistic magic.

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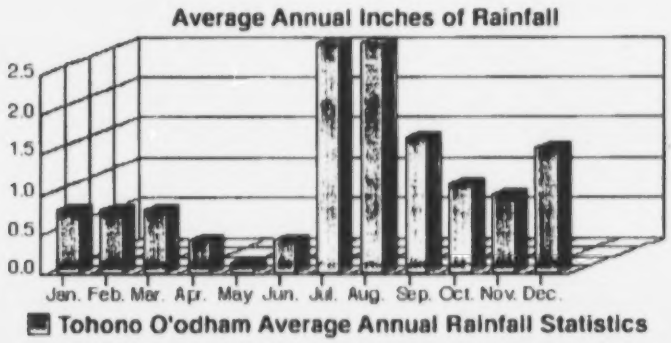
# Rain in Life

The Sonoran Desert has the same two rainy seasons as do other areas of the Southwest. For nearly 2,000 years, people of the desert have based their residential patterns, their agriculture, and other food gathering on detailed knowledge of these seasons. The importance of rain in O'odham life is reflected in the traditional calendar.

| NAME | TRANSLATION | ENGLISH EQUIVALENT |
|---|---|---|
| Ha:san Bak Masad | Month to gather saguaro fruit | June |
| Jukiabig Masad | Month of rain | July |
| Sopol Esabig Masad | Short month of planting | August |
| Wasai Gakidaj Masad | Month of dry grass | September |
| Al Ju:big Masad | Month of planting squash that can withstand frost | October |
| S-ke:g S-he pjig Masad | Month of pleasant cold | November |
| Ge'e S-he:pjig Masad | Month of big cold | December |
| Gakimdag Masad Masad | Month to depend on stored foods | January |
| U: walig Masad | Deer mating month | February |
| Ce:dagi Masad | "Green season" New plants come up | March |
| Uam Masad | Yellow month/Desert in bloom | April |
| U'us Wihogdag Masad | Month to gather beans; a time of hunger | May |

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# Dry Spell

For Tohono O'odham, the year begins with early summer harvesting of saguaro fruit and the attendant ceremony that keeps it raining during the summer months.The names of O'odham lunar "months" for the summer rainy season reference precipitation and its attendant impact on plants. The new year begins with *Hasan Bakmasad* (roughly equivalent to June), "Saguaro moon." It is followed by *Jukiabig masad* (July), "Rainy moon," at the beginning of summer thunderstorms and the planting of crops.

## Rain in Ceremony

A rain ceremony or wine feast is a gift to the Tohono O'odham people from *I'itoi*, the Elder Brother and Creator. The ceremony begins with "pulling down the clouds," or harvesting ripe fruit from the saguaro cactus. The harvest and production of saguaro syrup may take from one to three weeks. The public portion of the ceremony includes the preparation, drinking, and regurgitation of saguaro wine as well as ritual oratory and dancing.

The large quantities of wine which the people consume becomes the medium through which they pray for rain. The sacred intoxication and regurgitation are referred to as "throwing up the clouds." It is said that the saturation of the people with wine is like the earth that will soon be saturated with water. Through their songs, speeches and sacred intoxication, the people summon the rain.

## Expressions of Rain

In contrast to the Pueblo cultures in which rain images permeate much that is done and made, concrete expressions of rain in O'odham culture are rare. Instead, they are founded in the rich oral traditions of the O'odham.

The rain ceremony includes several examples of ritual oratory. Early in the ceremony, runners go to neighboring villages with speeches of invitation to the ceremony. These speeches are followed by others associated with being seated, sitting and drinking, and finally, the mockingbird speeches that call for the release of the clouds.



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# The O'odham Today

Today, the O'odham (meaning people) live in lands they have occupied since the beginning of time. This land is currently located in two countries, the United States and Mexico, and is classified environmentally by Euro-Americans as the Sonoran Desert. The Tohono O'odham have been organized as a nation or "tribe" by the United States, but the O'odham think of themselves more as members of a particular community, such as Sells, Ak-Chin, Santa Rosa, etc.. Although they share a common language, customs and culture, their identity is based upon their geographic community and their participation in that community.

Just as there are different countries in Europe, in the Sonoran Desert there are three different groups of O'odham. Depending on where they lived and what natural resources could be used, the O'odham developed different and unique ways of life. In a general way these can be described as O'odham with no villages, O'odham with two villages, and O'odham with one village. Today, the no village way of life has been abandoned due to missionary and government pressures as well as environmental changes. The two village O'odham are today known as the Tohono O'odham (Desert People, formerly "Papago"). The one village people are the Akimel O'odham (River People) or Pima.


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# Dry Spell

"Reservations" reflect only a fraction of the land used by the Tohono O'odham people in the past. The area of land currently used by the Tohono O'odham is often referred to by Euro-Americans as the "Papagueria." This describes the area that has been occupied by the Tohono O'odham for centuries. It is a vast area stretching from the Gila River in the north to the Sonora River in the south, and the Colorado River in the west and the San Pedro River in the east. The Tohono O'odham manage this land wisely; utilizing the water resources to farm; gathering and replenishing the abundant wild vegetation; hunting game; and ranching domesticated animals in the valley grasslands. Although there are occasionally severe shortages of water, the O'odham continue to live successfully in this land.

The first contact the Tohono O'odham had with non-Indians occurred in the 17th century. Until this time, the Spanish largely ignored the O'odham because they did not live in an area that was of economic interest to the colonial authorities. In 1687, a Jesuit missionary, Father Eusebio Kino, was sent to the area to convert the Tohono O'odham. Contrary to the usual Spanish missionary treatment, Kino emphasized kindness and goodwill towards the O'odham. Kino promoted cultural exchange with the O'odham and introduced many European items like horses, cattle, wheat and barley. The missionaries were thought to be good men by the O'odham, but the Spanish soldiers were viewed as adversaries.

During the Spanish colonial period in Mexico, the Spanish did not displace the O'odham from their land because the O'odham were subjects to the King of Spain and under his protection. The Spanish crown formally acknowledged that the O'odham had legal title to their lands in the form of a grant.

The independence of Mexico from Spain in 1810 brought changes to the O'odham people. They became the "frontier" in northern Mexico and without the protection of the King, the legal title to their lands was ignored by other people looking for places to settle. In addition, the O'odham were subject to raids by the Apache, who were negatively impacted by the colonial pressures resulting from Euro-Americans expansion into their territory.

The war between Mexico and the United States (1846-1848) was concluded by the Treaty of Guadelupe Hidalgo, which left the O'odham territory intact as the northern-most part of Mexico. However, the desire to secure a good route for the trans-continental railroad pressured U.S government officials to negotiate the Gadsden Purchase in 1854. This in effect transferred half of the O'odham territory to the United States and left the other half under the jurisdiction of Mexico. This division between two foreign governments had dramatic consequences for the O'odham.

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According to the terms of the purchase, the United States agreed to honor all land rights in the area held by Mexican citizens. The O'odham, who were considered citizens of Mexico, were reassured by the United States government that this included the legal title to their land, which had been established under the Spanish king and recognized by the succeeding governments of Mexico. However, pressure for land escalated with the development of mining in this area of the country.

The United States government finally acted to guarantee land to the O'odham when it established a small reservation at San Xavier del Bac in 1874. In 1882, the Gila Bend Reservation was established for the O'odham, but in 1909, 12,000 critical acres were removed from the Reservation, making the area uninhabitable. The Ak-Chin or Maricopa Reservation was established in 1912, but the land was also reduced by two separate executive orders.

These three river reservations - San Xavier del Bac, Gila Bend and Ak-Chin or Maricopa - are home to only a small percentage of the O'odham people. Most live on the large Tohono O'odham reservation to the west of what today is Tucson. After several attempts to secure a guaranteed legal title to the land base for the Tohono O'odham, a committee of concerned supporters convinced the federal government to establish the reservation in 1916. Although it was only a portion of the land used by the O'odham, federal officials further reduced the land holdings in 1917. It was not until 1926 that the area was restored to the O'odham.

The struggle to retain their land and homes is one of the primary issues that has unified the Tohono O'odham nation. In the early 1900s, there were several tribal-wide organizations that fought for O'odham rights. In 1934, the government passed the Indian Reorganization Act and the O'odham voted the same year to form a tribal government under the Act. In 1937, the tribal constitution was adopted. Today, the O'odham people are governed by a chairman and a co-chairman elected by the people.

For a long time, the Tohono O'odham were called "Papabotas" or bean eaters by the Spanish. Later, Anglo-Americans anglicized this to "Papago." The O'odham did not care for this name because it wasn't their proper name. So in 1986, the nation legally changed its tribal name to the name they had always called themselves: Tohono O'odham, the "desert people."

The Tohono O'odham are successful at living in the desert because of centuries of experience. Through oral tradition, their ancestors have handed down information about the location of water and its proper management. Knowing how to use and replenish the riches of the desert for food, clothing and building materials is a part of Tohono O'odham tradition. Critical information about what, how and where to plant seeds is scientific knowledge that has led to the success of the O'odham people.

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# Dry Spell

There are many ways to prepare desert foods. Squash, chili, cactus fruits and flowers, and other foods are usually dried. Sometimes foods such as corn and cholla fruit had to be roasted before drying. After drying, the foods can be ground into meal and stored in ollas. Stored food can later be used to make tortillas, bread or *atole* (a drink of dried corn meal and water). Mesquite pods, which are already dried when collected, are immediately taken to special grinding holes. These holes, called *cepa*, were found at places where large slabs of rock were exposed above the soil. The mesquite pods and other vegetal foods were tossed into the natural mortars and pounded to a powder using hardwood pestles.

Mesquite Tree and Pods

In the past, the O'odham relied on the desert foods. Beans were a staple and important part of their diet. In fact, the O'odham grew and ate so many beans that they were nicknamed "the bean people" by the Spanish. Beans included mesquite beans, ironwood seeds, palo verde pods, acacia pods, red, white and yellow tepary beans, and lima beans. Other foods included acorns, nopalitos (new pads of the prickly pear cactus), cholla buds and cactus fruit. In the past, the O'odham ran and did a fair amount of physical work. Early Euro-American observers describe the O'odham as exceptionally healthy people at the time of contact.

Today, however, it is a different story. The O'odham have one of the highest rates of diabetes in the world. In fact, this disease has reached epidemic proportions among all Native Americans. At the turn of the century, physicians working among Native Americans reported very few cases of diabetes. By the 1980s, Native Americans had become ten times more likely to develop diabetes than any other group in America. Anglo-American medical doctors now realize that the dramatic change in the O'odham diet has created a very serious health problem for that community.

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# Dry Spell

Historically, changes in the O'odham environment occurred during contact between the O'odham and the Spanish. New foods, including wheat, and new food animals, such as pigs and cattle, were introduced into the diet. Before the Spanish, Native Americans baked, boiled, or roasted food. Frying, which requires animal fats, was a technique learned from the Spanish after contact.

Since 1900, the damming of rivers has reduced the ability of the people to grow their own food, and forced them to purchase processed food. Roads and highways have brought pollution, which affects desert plants: some die and others adsorb the toxins, thus making them inedible. Boarding school education also "taught" the O'odham that their desert foods were primitive, uncivilized and inedible. In addition, the United States program of distributing food (commodity food or "commodities") as part of the War on Poverty programs of the 1960s emphasized fatty, starchy, filling foods. Finally, "natural" or unprocessed foods have become the most expensive of foods. Snack foods or low-priced foods are frequently filled with more fat, sugar and salt than most.

Weaving, known as *Hohata*has been an important Tohono O'odham activity for centuries. Talented weavers are able to make many useful items using products from the desert and the skill of their hands. *Hoha* is the Tohono O'odham word meaning baskets of many types. Baskets are extremely useful and can be used for a variety of purposes. A basket is used for storage of food as well as personal belongings. A special style of basket is used for winnowing grains. The Tohono O'odham also made a special basket for carrying heavy things. In addition, basketry weaving techniques are used to create trays, sleeping mats, walls and doors for brush houses, traps, hats, bags, brushes, cradle boards, sieves, water jug handles and headrings for carrying water jars on the head.

The ability to make so many different things by weaving natural fibers emphasizes the long-lasting relationship the Tohono O'odham have had with their desert environment. Weavers know which plants to select for use in making each different item. Many baskets require natural materials from a variety of plant sources: saguaro ribs, mesquite root, yucca leaves and roots, arrowbush, agave leaves, beargrass, devil's claw, ocotillo, willow and desert spoon are the most commonly used plants. Each material has a different technical purpose. Yucca leaves are excellent for stitching the coils in a basket, but beargrass is the best plant to use for the inside or foundation of the coil. Devil's claw (marytinia or unicorn plant) is a natural black fiber that is used for designs.

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# Questions and Answers about the Tohono O'odham

**In the past, how did the Tohono O'odham obtain food?**

- The life of the Tohono O'odham was based on the seasons: two rainy seasons (summer and winter) and two dry seasons (spring and fall).
- During the summer, they live in the valleys and, taking advantage of the summer rains, grew crops of corn, beans and squash.
- During the winter, the Tohono O'odham moved to the mountains where there was water available from the springs. They gathered wild plants and ate the foods from the summer that had been dried and saved.
- They also hunted animals and gathered plants at other times.

**Was there any special food for the Tohono O'odham?**

- Yes, the fruit of the saguaro cactus. The Tohono O'odham collected great quantities of the fruit during the early summer. At the camp, they cooked the fruit and made syrup and jam. The seeds were dried and saved as well, and could also be eaten.

**Why is it said that the Tohono O'odham had a "Two Village" way of life?**

- Because they lived at the field villages during the summer months and at the well villages in the mountains during the winter months.

**In what part of the Sonoran desert do the Pima live?**

- Along the Salt and Gila rivers, at the northern end of the Sonoran Desert.

**In the past, how much water was available to the Pima?**

- Almost constant water from the rivers nearby and between 10 and 15 inches of rain per year.

**In the past, how did the Pima obtain food?**

- Since they lived along the Salt and Gila rivers, the Pimas were able to grow large quantities of corn, beans and squash during the summer. After it was introduced by the Spanish explorers, they were able to grow wheat during the winter.
- The Pimas also collected wild plants and hunted animals such as deer, rabbits, elk and some birds.

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**Name an important special food of the Pimas.**

- The mesquite tree. The Pimas obtained abundant food from the mesquite trees and used the wood to build houses and sun shades called ramadas and to make fires for cooking.

**Why do we say that the Pima had a "One Village" way of life?**

- Because they lived in permanent villages along the Salt and Gila rivers throughout the year.

**What is a desert?**

- Simply put, a desert is a place where moisture is lacking and unpredictable. Therefore, the species that live in the desert must be able to adapt to that situation. Plants in the desert have evolved unique physical qualities that allow them to withstand drought. Some animals, as well, have specialized physiology. Others, including human beings, have developed specific behavior patterns that allow them to succeed in the otherwise harsh environment. In the Southwest, the long periods of high temperatures are yet another factor that all life must contend with.
- In North America there are four major desert areas. They are sometimes referred to collectively as the "Great American Desert." Differences in geography, elevation, climatic conditions and other factors affect the presence and growth of plants in these areas. Some botanists, in fact, use particular plants as "markers" that define each of the four desert regions by the fact that these plants grow abundantly only in that region. The desert that is discussed in this unit is the **Sonoran Desert**, located in southern Arizona, Baja California and northern Sonora, Mexico. The plant "marker" for the Sonoran Desert is the saguaro cactus (Cereus giganteus).

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LANGUAGE

# One Hot, Dry Afternoon...

**Activity:** Students put a story in order and create a book.

**Focus Activity:** Discuss what it is like to live in the Sonoran Desert during the summer. Look at the painting "Rain House/Saguaro Wine Festival" by Michael Chiago (Tohono O'odham) and talk about how he lets you know that it is the hot time of the year. Talk about ways to cool off!

**Outcomes:**

1. Students will learn to order the events of a story and, in doing so, will create their own book.

**Materials:**

"Sunday Swim" for the teacher to read to the class, *photocopies of the "Sunday Swim" sheets for each student (6 sheets and cover), *pencils/crayons/markers for drawing, *stapler.

**Procedure:**

1. Read the story "Sunday Swim" to the class. Discuss the story: do the students know why it is called "Sunday Swim?" Do the students realize that the story follows the days of the week?

2. Give out to each student the seven sheets to make the book. Ask students to put the sheets in order.

3. Discuss the order for the book. Have the students help each other. When you are sure that all the students have understood the sequence, have students number the pages.

4. At this point, there could be several activities associated with this exercise:

- Have the students illustrate their book as an art project.
- Have the students present the story as a play, with the students taking the parts as narrator, Bird, Snake, etc..
- Have the students make masks-on-a-stick or paper plate masks as an art project to use in presenting the story as a play.

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# Dry Spell

**Assessment:**

- Did the student understand the story?
- Were the students able to correctly order the text sheets?
- Did the students realize that the story followed the days of the week (in order) and that the cast of characters grew larger through the week?

**Extension:**

- For older students: using the same format, have students change the story by changing the activities, the weather, the characters or the time frame. Some examples are: Sunday Ski; April Busride; Afternoon Rollerblade.



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# Sunday Swim

**This is my book:_____.**

# My Diary

**Activity:** Students write one entry per day summarizing what was an important or notable event for them.

**Focus Activity:**

Look at the art prints: "Niman Ceremony at Walpi Village" by Raymond Naha (Hopi). Discuss how each painting records a specific event. Discuss with the class that events can be recalled visually (such as in the paintings), orally (by telling someone about the event) or documented (by writing about the event).

**Outcomes:**

1. Students summarize an event.
2. Students practice putting their thoughts in writing.
3. Through sharing, students realize that not everyone thinks that the same things are important

**Materials:**

*paper or notebook, *pencils

**Procedure:**

1. After class discussion, set aside a part of every day for students to think back on their previous day and select one special thing to remember.

2. The students should then write about this event in their diary.

**Assessment:**

- At the end of a week, ask students to share their remembrances. Are all the diary events the same?
- Does everyone remember the event the same way.



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# Dry Spell

**Extension:**

- In the "Art Projects" section of this section there is a lesson on the "Calendar Stick."
- This diary activity can be done in association with the art project.



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# My Yearbook

**Activity:** Students write a book, highlighting each month of the year.

**Focus Activity:**

Look at the "Rain House/Saguaro Wine Festival" print, and review what artist Michael Chiago (Tohono O'odham) said about the time of year: "In late June when the fruit of the giant saguaro ripens..." Look also at the "Tohono O'odham Calendar of Seasons" found in the Cultural Information section. And finally, read "Sonoran Seasons: A Year in the Desert" by Gisela Jernigan.

**Outcomes:**

1. Students will create booklets while reviewing the months of the year and learn to summarize events.

**Materials:**

"Sonoran Seasons: A Year in the Desert," *paper, *pencils

**Procedure:**

1. Read "Sonoran Seasons: A Year in the Desert" to the class.

2. Go back and review each monthly entry: have the students identify the kind of information given--weather, plants, colors, activity.

3. As a class, do this same exercise: for each month, identify some colors, activities, weather, etc..

4. Have students work alone or in groups to create a yearbook based on these lists.

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# Dry Spell

**Assessment:**

- Were students able to identify how the author of the book focused on just a few impressions to identify each month?
- Could students compose a text for each month following the guidelines?

**Extension:**

- Students could share their yearbooks.
- Students could illustrate their yearbooks.



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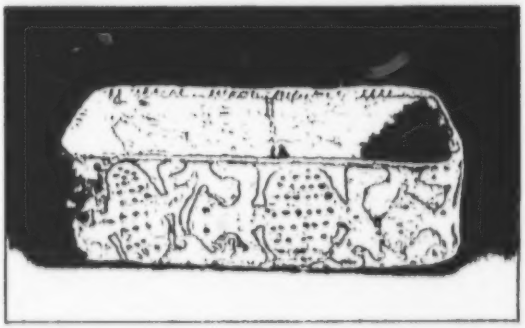
# What's the Story?

## *(for older students)*

**Activity:** Students create a story.



**Focus Activity:** Look at the Red-on-Buff Rectangular Bowl. Discuss with the students that the maker of this piece is not known. Discuss how little we know about the bowl: Who made it? Why was it made? How was it used? Where was it used and by whom? Who painted the design? How old was the maker(s)?

**Outcomes:**

1. Students will create the essentials of a story and write their own narrative.

**Materials:**
art prints of the Red-on-Buff Rectangular Bowl (Hohokam) and Canteen (Cochiti), paper, pencils.

**Procedure:**

1. After looking at the Red-on-Buff Rectangular Bowl and discussing all the questions, demonstrate to the students that the basic questions -- Who? What? Where? When? Why? -- are the building blocks of a complete story.

2. Work through the following exercise with the students, based on the art print:

**Who:** The Hohokam artist made it.

**What:** The Hohokam artist made the bowl.

**Where:** The Hohokam artist made the bowl in the plaza.

**When:** The Hohokam artist made the bowl in the plaza a long time ago.

**Why:** The Hohokam artist made the bowl in the plaza a long time ago to give as a gift for her mother.



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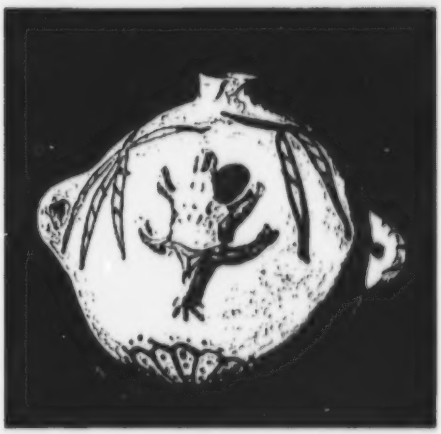
3. Now look at the art print of the Canteen made by an unknown Cochiti artist. Have the children ask themselves or think about the basic questions concerning the Canteen.



4. Give each student paper and pencils. Using the model, ask each student to begin with the sentence: The artist made it. Then, add to the information by adding the Who? What? Where? When? and Why? sentence by sentence.

5. Have the students share their work.

**Assessment:**

- Did the students add the appropriate information for each question?

**Extension:**

- Repeat this exercise with other images or items, such as a decorative flower pot, a painting, etc.



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MATH

# Beans: Odd or Even

**Activity:** Students will pair dried beans to determine if the quantity is odd or even.

**Focus Activity:** Look at the art print "Untitled" by Tse-Ye-Mu (San Ildefonso). It is a drawing of a dance. Notice how the dancers are in two lines. Notice too that the dancers are in pairs: men and women. Discuss with the students that when there are two things or a pair, we say that there are an even number. If there is no partner, we say that something is an odd number. How many even numbers of people or things can be seen in the print? How many odd numbers?

**Outcomes:**

1. Students will experience the concept of even and odd using manipulatives.

2. Students will determine whether a quantity is even or odd.

**Vocabulary:** quantity, even, odd

**Materials:** a bag with 20 dried beans per group, *duplicate copies of the "Beans: Odd or Even" worksheet for each student.

**Procedure:**

1. Explain to the students that when every object in a group has a partner, we say that the group has an even number. If there is no partner for an object in a group, we say that the group has an odd number.

2. Let students experience determining even and odd and record their findings on the answer sheet by doing the following:

   a. Give each student or group of students a bag of 20 dried beans.

   b. One student selects one of the numbers on the worksheet for investigation (e.g., "5"), and counts out that number of beans from the bag.

   c. Students then arrange the beans to see how many "bean partners" can be made with the beans.



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d. If all the beans have partners, then the students write "even" in the box next to the number. If students have one bean without a partner, the word "odd" is written in the box next to the number.

3. Students discuss the findings as a class. If there are any numbers where the findings do not agree, repeat that exercise as a class.

**Assessment:**

1. Do students realize that numbers used when counting by twos are even?

2. Were students able to predict whether a number was even or odd using the information found in the previous experiences?

**Extension:**

1. This activity can be done with many different objects and students often need to explore this concept many times.

2. Higher sums can be more interesting for some children and they will still arrive at the same concept.

3. This activity can be played as a game with cards or dice used to determine which quantity to explore.



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# Beans: Odd or Even Worksheet

1. Select one of the numbers on the sheet.
2. Count out that number of beans from your bag.
3. Arrange the beams in twos - each bean with a partner.
4. If all of the beans have partners, write **"EVEN"** next to the number you selected.
5. If one bean doesn't have a partner, write **"ODD"** next to the number you selected.
6. Put the beans back in the bag.
7. Select another number and repeat the activity until you have marked all the spaces below either **"ODD"** or **"EVEN"**.

---

| | |
|---|---|
| **10** | **1** |
| **8** | **4** |
| **14** | **11** |
| **5** | **7** |
| **2** | **3** |
| **6** | **12** |
| **9** | **13** |

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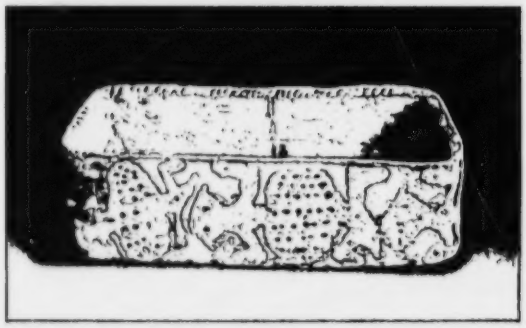
# Dried Beans in a Jar



**Activity:** Students will estimate how many dried beans are in a jar.

**Focus Activity:** Look at the Red-on-buff Rectangular Box (Hohokam). Ask the students to suggest some things that could fit in the bowl. Talk about what wouldn't fit. Talk about things that wouldn't need a container that large. Introduce the concept of estimating.

**Outcomes:**

1. Students will practice and refine estimating skills to develop number skills.

**Vocabulary:** estimate, confirm, quantity, amount

**Materials:** clear plastic jar, dried beans (placed in jar by teacher), *copy for each student of the estimate sheet.

**Procedure:**

1. Be sure that everyone has an opportunity to see the jar clearly.

2. Students record their estimate of the number of beans in the jar on their recording sheet.

3. Estimates can be graphed and a range determined. (This is best done after students have already had some experience with this concept in previous classes)

4. The jar is opened and the class counts the beans together to confirm the actual number.

5. Students then write the actual amount and determine the difference between their estimate and the actual amount.

6. Repeat the activity the next day with a different quantity.

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# Dry Spell

**Assessment:**

- 1. Does the accuracy of the students' estimates improve?
- 2. Is there evidence of a strategy for making estimates?

**Extension:**

- 1. This activity should be repeated many times with many different objects and different sizes of jars.

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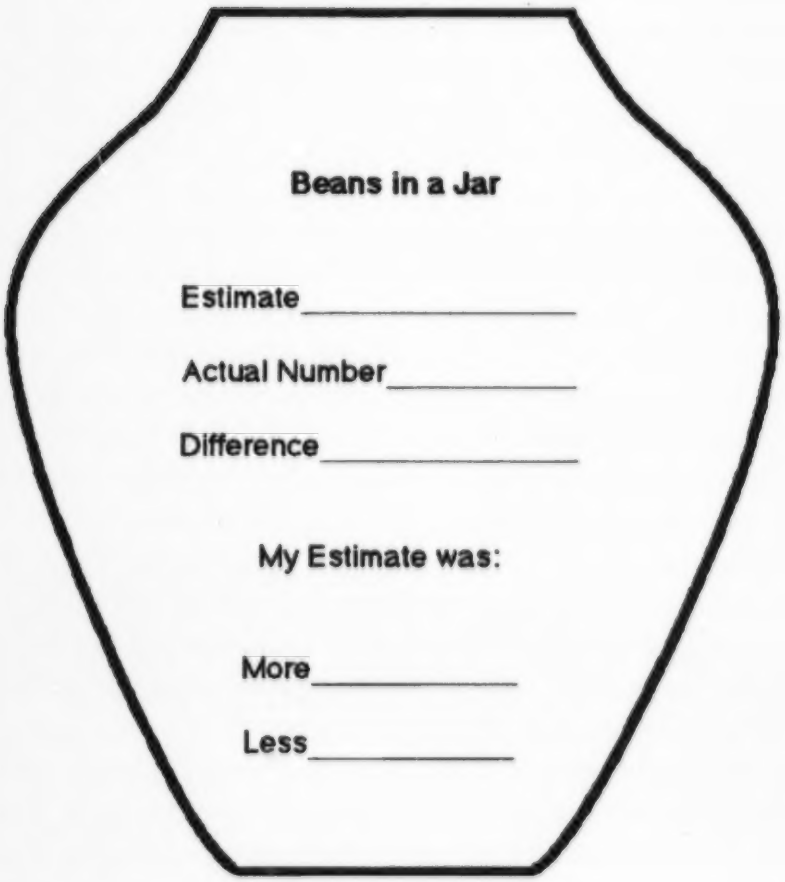
Beans in a Jar
Estimate_____
Actual Number_____
Difference_____
My Estimate was:
More_____
Less_____

# Rock Message

## *(for older students)*

**Activity:** Students order long division problems and arrive at the solutions. Using their answers, they "decode" the words.

**Focus Activity:** Look at the painting "Rainhouse/Saguaro Wine Festival" by Michael Chiago (Tohono O'odham). Look at all the rocks in the painting -- there are really too many to count! Discuss how many. different types of rocks are in the painting. Collect some vocabulary words for different types of rock

**Outcomes:**

1. Students will practice skills in long division.

**Materials:** pencils, copy of the worksheet for each student, copy of the riddle sheet for each student with the words to be "decoded," scrap paper.

**Procedure:**

1. Give each student a copy of the worksheet, a pencil and scrap paper.

2. Have students rewrite the long division sentences in problem form.

3. Students should now be given time to work on their problems.

4. As they finish their work, students can get their riddle sheet.

5. By filling in the letter that corresponds to the number, students can "decode" their words and find the answer to the riddle.

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# Dry Spell

**Assessment:**

1. Are the students able to rewrite the number problems correctly?

2. Can the students solve the long division problems?

**Extension:**

1. Encourage students to check their answers by multiplying the answer by the divider and adding the remainder.

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Name_____

**Rewrite and solve the long division problems to find out the "code" for each letter.**
**Then, on the riddle sheet, fill in the blanks to discover the words that solve the riddle.**

**K**: 69 divided by 8 equals?

**A**: 6 goes into 37 how many times?

**L**: 5 goes into 18 how many times?

**C**: 593 divided by 3 equals?

**M**: 3,215 divided by 4 equals?

**R**: 21 goes into 499 how many times?

**Y**: 19 goes into 8,712 how many times?

**E**: 7,373 divided by 33 equals?

**D**: 21,831 divided by 357 equals?

**O**: 123 goes into 35,722 how many times?

**B**: 128,933 divided by 618 equals?

**N**: 203 goes into 1,407 how many times?

**Use the space below to work your long division problems.**
**Use the extra paper when you run out of room.**

Name_____

**If you like to collect rocks, what kind of cake is your favorite?**

| | | | | | |
|---|---|---|---|---|---|
| 803R3 | 6R1 | 23R16 | 208R389 | 3R3 | 223R14 |

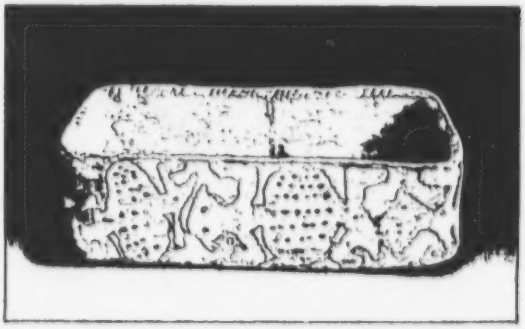
| | | | |
|---|---|---|---|
| 197R2 | 6R1 | 8R5 | 223R14 |

**What kind of candy is you favorite?**

| | | | |
|---|---|---|---|
| 23R16 | 290R52 | 193R2 | 8R5 |

| | | | | |
|---|---|---|---|---|
| 193R2 | 6R1 | 6R189 | 61R54 | 458R10 |

# The Perfect Rock...or That's Your Point of View



**Activity:** Students will determine the attributes of a set of rocks and then practice addition skills.

**Focus Activity:** Look at the art prints Red-on-buff Rectangular Box (Hohokam) and Canteen (Cochiti). Discuss with students how one is not "better" than the other, but that the containers are different from each other. Which would be best for carrying water? Which would be best for serving a sauce? In what other ways could you use the containers? Which container do you like the best? Why?

**Outcomes:**

1. Students will practice addition facts.

2. Students will look critically at rocks to determine their attributes.

3. Students will learn that two people do not necessarily have the same way of looking at things.

**Vocabulary:** attributes, valuable, prospect

**Materials:** rocks with different attributes on cards (A, B, C, D); magnifying glass; rock "value" listing *paper, *pencils

**Procedure:**

1. Set out the rocks on cards so they can be examined.

2. Allow students in small groups to feel the rocks and examine them closely. With only the one set of rocks provided, this activity works best at a center. However, if you made additional sets for every two or three children, this can be done as a cooperative activity.

3. Let students have time to take a good look at each rock, list all the attributes, and find a corresponding value for each attribute.

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4. Students then need to add up the total for all attributes to determine the most "valuable" rock in the collection...from their point-of-view.

5. Students share their sums. What rock was rated most "valuable?"

**Assessment:**

1. Did students determine all of the attributes for each rock?

2. Was the addition correct?

3. Was there evidence of a strategy in gathering the data or was it haphazard?

**Extension:**

1. This activity can be repeated with different rocks and a different set of values for the attributes.

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# Rock Values

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### *Appeal (select only one)*

Beautiful = 4
Ugly = 2
Interesting = 5
Boring = 1

---

### *Color*

Red = 5
White = 4
Black = 3
Brown = 2
Gray = 1

---

### *Shape*

Round = 3
Regular = 5
Irregular = 1
Pointed = 4
Flat = 3

---

### *Size*

Large = 3
Medium = 1
Small = 2

---

### *Texture*

Scratchy = 3
Bumpy = 2
Smooth = 4
Rough = 3
Powdery = 5
Hard = 1

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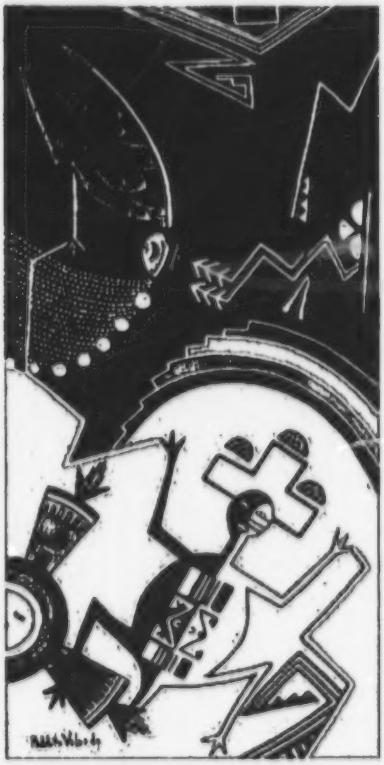
PRINTS

## "Awatovi Mural"



**Artist:** Pablita Velarde

**Culture:** Pueblo of Santa Clara, New Mexico

**Size:** Width 22"; Height 38"

**Media:** Earth pigments, masonite

**Date:** 1960s

**Catalogue Number:** IAC14

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# Dry Spell

**Description:**

Frog- Frogs are associated with rain because they are found near rain water.

Hat- On top of the frog is a symbol of a cloud that looks like a hat.

Lizard- Lizards are often found around sources of water.

Rainbow- Rainbows are associated with new life.

Lightning- How many places do you see a line that reminds you of lightning?

Sun- The sun is necessary for life.

**Vocabulary for discussion of Art Elements:**

Line - straight, curved

Shape - natural, symmetrical

Color - earth pigments, neutral

Space - Discuss how the artist has filled the space by looking side-to-side, top-to-bottom

Texture -The earth pigments give the work a look of velvet

**Art Principles:**

Concept: Balance

Discuss with your students the way the artist has offset the images in the picture with something of a similar size so that each side of the picture is balanced.

**Cultural Context:**

Pablita Velarde was born in Santa Clara Pueblo on September 19, 1918. Ms. Velarde talks about the earth and the soil with a special love, and she used the soil as the medium to create this painting. Of course, we can't know everything that created this love for soil in Ms. Velarde, but there are some possible reasons we can consider.

The first is that Ms. Velarde's father was a farmer like many men in the early 20th century. Watching their food grow from the soil was probably very important to her as a young child.

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A second reason Ms. Velarde might feel the special love she has for soil is that her home, as she was growing up, was made of adobe. Adobe is a brick made of mud and straw. Adobe homes are very comfortable in summer and winter and safe from storms.

Another reason Ms. Velarde might feel love for the soil is the tradition of pottery making in Santa Clara Pueblo. Families from the pueblo go together to dig the special red clay from the earth near the village, which they use to make beautiful red or black pottery.

Probably the most important reason for Pablita Velarde's special love for the soil comes from the religion of her people and their regard for the earth.

Ms. Velarde has taken her love for the soil and crated a unique art form she calls "earth pigment painting". She uses soil or rocks that she finds or buys, and grinds them into a fine, powdery dirt to mix with water and glue to make an unusual paint.

She uses this mixture to create paintings in the style of those found on fragments of adobe walls removed from the earth by archeologists. These walls were painted from mineral paints many centuries ago. Ms. Velarde does not reproduce these paintings, but creates new images in the style and spirit of early artists.

**Artist's Response**

Ms. Velarde said of her native earth pigments and subjects: "Somebody has to keep preserving some of our ancient past, because if we don't, in time, it will disappear. There's a thing about keeping it alive, not just with photographs and recordings, but by somebody doing it. I feel that I'm keeping the old art alive by painting the ancient way with my earth pigments and my traditional designs. I feel that I am keeping them alive, and they're keeping me alive."

Discuss with your students why Ms. Velarde feels this way about her earth pigment paintings, and discuss how students feel about it and how they feel about their own art work.

**Questions for discussion:**

1) What animals do you see?

2) What is the shape on the lizard's head?

3) There are many zig-zag lines in this painting. Do they remind you of something?

**Image for comparison:**

Pascola Mask

Cochiti Pueblo Canteen



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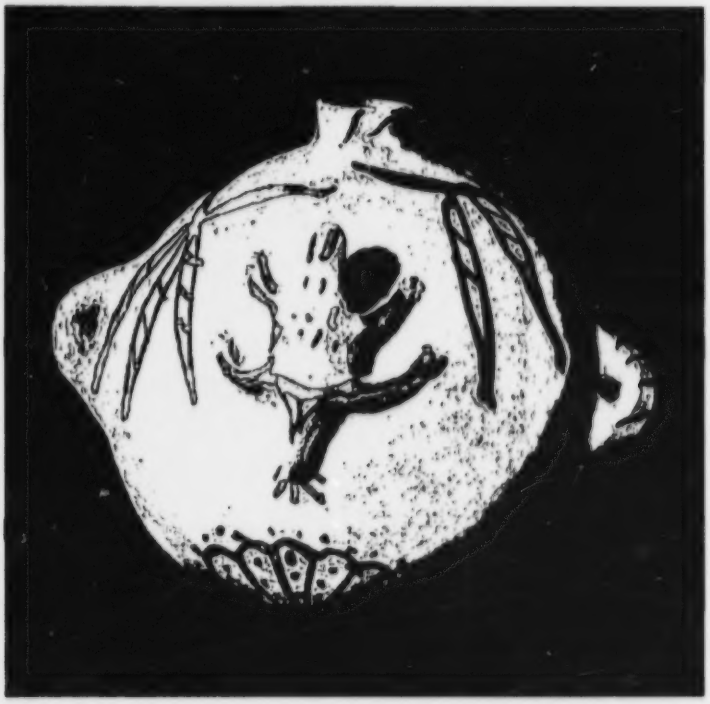
# "Canteen"



**Artist:** Unknown

**Culture:** Pueblo of Cochiti, New Mexico

**Size:** Height 5 7/8"; Circumference 21 7/16"

**Media:** Clay

**Date:** c. 1900

**Catalogue Number:** 657P

**Description:**

Lizard - The lizard stands out from the container. A shadow can be seen on the canteen.

Leaves - Plant shapes are used to decorate the container

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# Dry Spell

**Vocabulary for discussion of Art Elements:**

Line - organic, natural

Shape - organic/natural, hollow, rounded, symmetrical

Color - Polychrome

Space - 3-dimensional, between, below

Texture - dull, hard

**Art Principle:**

Concept - emphasis

Finding a three-dimensional lizard on a canteen is a surprise. This is a design used by prehistoric potteries as well.

**Cultural Context:**

This canteen was made about the turn of the century. At that time there were very few cars and only 150 miles of paved road in the entire United States. People usually traveled long distances by walking, riding a horse or riding in a horse-drawn wagon. As a result, travelers in the desert would be on the road for a long time between water sources. Thus, travelers needed to carry their own water. This canteen shape with a small opening and handles was easy to carry or tie to the traveler's horse.

The artist who made this canteen dug the clay, worked with it and fired it, just as he/she would when making a jar or bowl.

The lizard on the side of the canteen appears to be going toward the water just as animals seek water around a watering hole. Artists often get ideas for their artwork from what they see in nature. Placing an animal seeking water on the side of a water jar or canteen is an idea artists have used since prehistoric times.

**Images for comparison:**

Pascola Mask

Hohokam Box – "Red on Buff Rectangular Bowl"

Awatovi Mural" by Pablita Velarde

**Questions for comparison:**

These three photos show images of the lizard family. Which lizard do you think is most life-like? Which lizard do you think is the most interesting?



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# "Niman Ceremony at Walpi Village"

**Artist:** Ray Naha

**Culture:** Hopi

**Size:** Height 38 1/4"; Width 57 15/16"

**Media:** Paint, composition board

**Date:** c. 1965

**Catalog Number:** IAC1938

**Description:**

Kachinas (*Katsinas*):

- *Hemis* Kachinas (carrying cornstalks and cattails) - These Kachinas present gifts as prayers for health and prosperity to Hopi children before returning to their home in the San Francisco Peaks.
- *Hemis Kachinmana* (wearing a red and white shawl) - In her left hand, she holds a water gourd with a rain cloud decoration.
- *Kokosori* - *Kokosori* is one of the smallest Kachinas. He is often seen with *Eototo*, who controls the seasons.

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# Dry Spell

Plants - Plants are given during the ceremony as a symbol of water: the cattails because they grow in water, and corn because it needs water to grow and is essential for the life of the Hopi.

Kachina (*Katsina*) dolls - In the Hopi language, the dolls are called *tihu* (*tee-hoo*). The closest English word is doll, but these figures are much more than dolls. Hopi girls treat these figures with respect and would never leave them at the bottom of a toy box or forgotten on the floor.

Houses - Adobe building such as these have been built for centuries in the Southwest. They are considered the first apartment buildings.

Valley - The Hopi village of Walpi is built on the top of a mesa. The valley is seen in the distance.

Ladder - This is the way to enter the underground room where religious meetings take place. The underground room is called a kiva.

Clouds - There are stratus and cumulus clouds in this painting.

**Vocabulary for discussion of Art Elements:**

Line - diagonal, horizontal, vertical, sharp, soft

Shape - organic, geometric

Color - natural, neutral, cool, warm

Space - two-dimensional, illusion, depth, position, size, overlap

Texture - soft, rough, smooth, scratchy

**Art Principles:**

Concept - perspective

Things close to you are larger and closer to the bottom of the painting. Things far away are small and high on the painting. Notice the use of overlap, as well, to show distance.

**Cultural Context:**

The *Niman* Ceremony is a religious tradition of the Hopi people. It is held in July, and this is the last time the Kachinas live among the Hopi people for the current year. In English, this could be called "The Going Home Ceremony" because the Kachinas will be returning to their homes in the San Francisco Peaks.



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# Dry Spell

Ray Naha painted this picture of the *Niman* Ceremony in the 1960s. This was a time when all Americans were becoming more aware of the traditions given them by their ancestors. Dr. Martin Luther King and Cesar Chavez were telling people to be proud of their heritage.

The American Indian Youth Movement was helping Native Americans, who were living away from their traditional homelands in cities, to learn about the customs of their people.

**Response from a Hopi woman:**

When Sandra Selestewa looked at this painting, it made her think about how she feels at a *Niman* Ceremony. "It is a sad feeling to see them go because you know it's going to be a long time before you get to sit up there again and watch," she said.

**Images for Comparison:**

"Rain House/Saguaro Wine Festival" by Michael Chiago (Tohono O'odham)

Untitled by Tse-Ye-Mu [Raymond Vigil] (San Ildefonso)

**Questions for Comparison:**

All of these paintings are ceremonies from different tribes and all include dancers. Which painting seems to have the most active dancers?

Which painting is the most colorful?

Which painting has the most neutral colors?

Which painting uses symbols?

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# "Pascola Mask"

**Artist:** Unknown

**Culture:** Yoeme (Yaqui)

**Size:** Height 7 15/16"; Width 4 15/16"

**Media:** Carved wood, paint

**Date:** c. 1970

**Catalogue Number:** NA-SW-YQ-I-8

**Description:**

Cross - This is distinctly Yoeme. It may represent the 4 directions.

Lizard - The lizard is the protector of water and the bringer of rain.

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Black, red and white - These are the traditional colors for the Yoeme.

Beard and eyebrows - These are made of horsehair. **Vocabulary for discussion of Art Elements:**

Line - short, organic curve

Shape - geometric, natural, triangular

Color - contrast

Space - triangle

Texture - silky, smooth, shiny

**Art Principle:**

Concept - contrast (both color and texture)

**Cultural Context:**

This mask is worn by the Pascola (old man of the fiesta). He is host at every fiesta. He opens and closes the fiesta, gives prayers and speeches and, at times, dances and acts like a clown.

The traditional homeland of the Yoeme is in the state of Sonora in Mexico, but poor economic and social conditions caused many Yoeme to make new homes in Arizona near Tucson and Phoenix. The traditional fiestas are held in these new homes.

**Images for comparison:**

Cochiti Pueblo Canteen

"Awatovi Mural" by Pablita Velarde

**Questions for comparison:** These three photo reproductions show images of the lizard family. Which lizard do you think is most life-like? Which lizard do you think is the most interesting?



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# "Rain House/Saguaro Wine Festival"

**Artist:** Michael Chiago

**Culture:** Tohono O'odham (formerly "Papago")

**Size:** This is a reproduction of the marquette from which a mural was made. The mural is in three panels. The first is 71 5/16" by 39 5/8". The second is 71 5/16" by 35 5/8". The last is 71 5/16' by 39 5/16".

**Media:** Acrylic on canvas

**Date:** 1993

**Catalogue Number:** 3458-1A, B, C

**Description:**

People - Tohono O'odham people have always referred to themselves as Tohono O'odham, but other people once called them "Papago."

Rattle - Rattles are made from gourds, which are grown in the gardens.

Rain House - A rain house is a structure made with a frame of mesquite trunks, sides of ocotillo branches, and a roof of saguaro ribs covered with leaves. It is used to store ceremonial materials.



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Fire - While June days are warm in the desert, nights can be very cold.

Jars - These jars hold the liquid squeezed from the recently picked saguaro fruit.

Ladle - This ladle is used to dip the liquid squeezed from the saguaro fruit from the jar.

Saguaro fruit-picking sticks - These are made from the rib of a saguaro and are used to pick fruit from the top of the plant.

Wagon - While this was painted in 1993, this tradition has gone on for many generations.

Mountains - The mountains are in the distance

**Vocabulary for the discussion of Art Elements:**

Line - diagonal, vertical, horizontal, short

Shape - organic

Color - natural, warm, cool

Space -depth, space, overlap
Direct the students to look at the painting from side-to-side and top-to-bottom

Texture -actual, simulated, smooth, rough, transparent

**Art Principle:**

Concept - balance
Ask: Does one side seem heavier than the other or are both the same?

**Cultural Context:**

Michael Chiago describes the ceremony depicted in this painting in this way:

"In late June, when the fruit of the giant saguaro ripens, the O'odham conduct a wine festival, a ceremony taught them by Elder Brother. In the old days...the saguaro provided them with fresh fruit, syrup and cake made from seeds.

The syrup-making process produces a juice which ferments for three days in the 'rain house' under the care of the "Keeper of the Smoke,' the village headman and ceremonial leader. Rain songs are sung, and men and women dance at night.

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At noon of the third day, the headman gather to recite poems over the baskets of wine. The men of the village sit in a circle and pass the baskets until they are drained. The planting of the crops takes place after the wine festival to make use of the rains that are bound to follow.

Today, many families still prepare the saguaro wine for their own use, and the custom to 'cover the wine with song' continues: anyone who accepts a drink of the wine recites a poem, which invariably relates to clouds or rain.

Because the ceremony is held at night, the children are often asleep, but during the day, they run and play ball, their feet pounding hard on the ground, stirring up dust. The songs they sing are calling to the clouds."

**Artist's Response:**

Mr. Chiago says when he thinks of this painting, he feels a part of the celebration. He says: "I have a good feeling. I am thankful we have ceremonies throughout our lives."

**Images for comparison:**

"Niman Ceremony at Walpi Village" by Ray Naha (Hopi)

Untitled by Tse-Ye-Mu [Raymond Vigil] (San Ildefonso)

**Questions for comparison:**

All of these paintings are ceremonies from different tribes and all include dancers. Which painting seems to have the most active dancers?

Which painting is the most colorful?

Which painting has the most neutral colors?

Which painting uses symbols?

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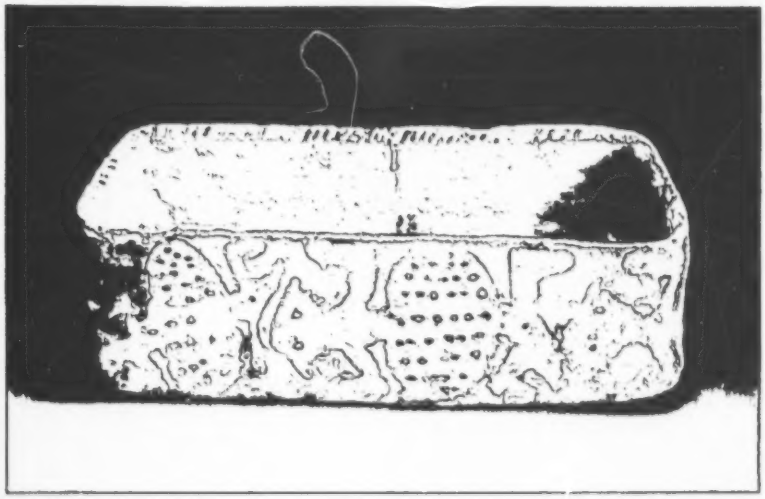
# "Red-on-Buff Rectangular Box"



**Artist:** Unknown

**Culture:** Hohokam

**Size:** Length 9 7/16"; Width 6 7/16"; Height 2 1/2"

**Media:** Clay

**Date:**c. 750 A.D.-900 A.D.

**Catalog Number:** NA-SW-HH-A4-31

**Description:**

Animal - Anthropologists are not sure whether this animal is a horned toad or a gila monster. The artist made the animal shape by covering the space around the animal with paint. The animal is the area where the clay of the bowl is not covered with paint.

Spots - These spots suggest to some anthropologists that this is a gila monster.

Stripes - The rim of the bowl is decorated with stripes.

**Vocabulary for discussion of Art Elements:**

Line - organic, natural, curved

Shape - symmetry, rectangular, depth, inside

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Color - neutral, natural

Space - positive, negative

Texture - actual, smooth, hard, simulated, rough

**Art Principle:**

Concept - Repetition

**Cultural Context:**

This bowl was made more than a thousand years ago by a Hohokam artist. It was made during a time when the Hohokam population was increasing. Because there were more people, they needed more land.They spread out along large rivers and extended their irrigation canals.

The Hohokam lived well in the Sonoran Desert. They knew how to manage the water from rain and rivers. They planted crops that could adapt to the desert. They knew where, when and how best to plant those crops, and they knew how to use desert resources to have a good life.

**Images for comparison:**

Cochiti Pueblo Canteen

"Awatovi Mural" by Pablita Velarde

**Questions for Comparison** These three images are from the lizard family. Which lizard do you think is most life-like? Which lizard do you think is most interesting?

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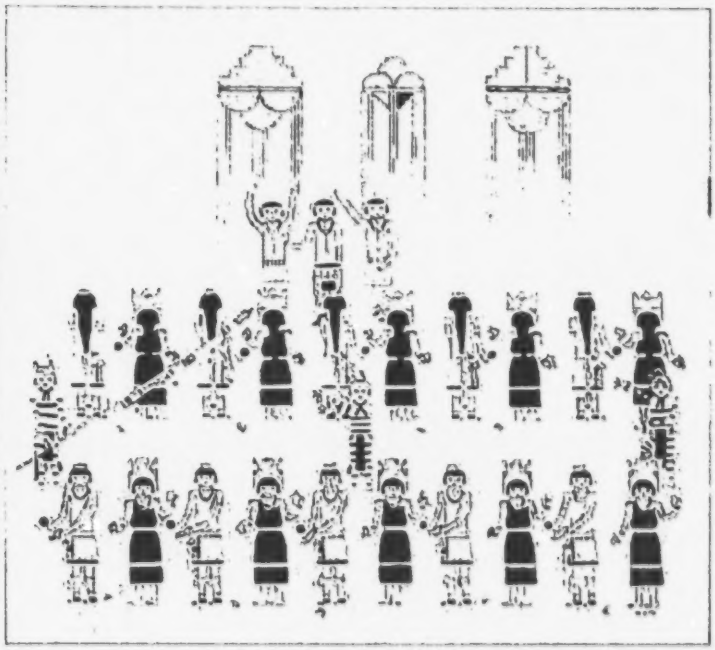
# Dry Spell

## "Untitled"



**Artist:** Tse-Ye-Mu (Romando Vigil)

**Culture:** Pueblo of San Ildefonso, New Mexico

**Size:** Height 31 3/16"; Width 33 11/16"

**Media:** paper, watercolor

**Date:** pre-1978

**Catalog Number:** IAC2281

**Description:**

Terraced (stepped) clouds

Rounded clouds

Rain

Ladies dancing - Call attention to the fact that they are barefoot, their hair is falling straight down their backs, and they are holding evergreens.

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# Dry Spell

Men dancing - Call attention to the white sash with fringe hanging down.

Drums - Drums are used in many ceremonies. They add the sound of thunder.

Three *kossas* - These figures are often called sacred clowns. This name often misleads English-speaking people. The *kossas* play an important part in ceremonials.

**Vocabulary for discussion of Art Elements:**

Line - horizontal

Shape - terraced, round, organic, stiff

Color - neutral

Space - imaginary horizon, sky

**Art Principles:**

Concept - pattern (repetition)

**Cultural Context:**

Dances and songs in ceremonials at San Ildefonso are prayers for a good life not only for pueblo people, but all people of the world. They sing and dance as prayers for a world in balance -- no famine, wars, tornadoes or floods. Women dance barefoot. It is an honor to touch mother earth's back. As they dance, women stand high on their feet calling the clouds down. Their hair hangs straight as a symbol of rain. The *tablita* (headdress) they wear is shaped like a cloud.

Men, too, wear rain symbols. The white fringe hanging from their sashes is a sign of rain. Cloud symbols are often painted on their kilts. One *kossa* holds a pole representing the rainbow. He swings it high and low, never letting it touch the ground. This is a call to rain.

According to Gary Roybal of San Ildefonso, curator at Bandelier National Monument, the *kossa* acts as though he really doesn't want it to rain, but he is always contrary, saying the opposite of what he wants. The *kossa* will pretend to chase the clouds away when what he wants is rain.

**Images for comparison:**

"Rain House/Saguaro Wine Festival" by Michael Chiago (Tohono O'odham)

"*Niman* Ceremony at Walpi Village" by Ray Naha (Hopi)

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# Dry Spell

**Questions for comparison:**

All of these paintings are ceremonies from different tribes and all include dancers.
Which painting seems to have the most active dancers?

Which painting is most colorful?

Which painting has the most neutral colors?

Which painting uses symbols?

If you could choose one of the ceremonies, which one would you like to go to?

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SCIENCE

# Is It or Isn't It...a Rock?

**Activity:** Students sort rocks from items that are similar, but are not rocks.

**Focus Activity:** Look at the art print"Rain House/Saguaro Wine Festival", by Michael Chiago (Tohono O'odham). Look at the mountains in the distance--from what materials are they made? What would you find there? Talk also about the ground where the Tohono O'odham are dancing. Chiago shows the viewer what the desert floor is like: note the grasses, rocks and pebbles.

**Outcomes:** Students will look critically at rocks and rock-like objects.

**Vocabulary:** natural, man-made

**Materials:** a variety of different types of rocks; an assortment of things that are not rocks: potsherds, concrete fragments, road paving fragments, a paper clip, and *any other materials you might add; bags; book: "Everybody Needs a Rock" by Byrd Baylor.

**Procedure:**

1) Read "Everybody Needs a Rock" by Byrd Baylor.

2) Ask students to propose ways to determine whether something is natural or man-made.

3) Give students or groups of students a bag with a variety of items-some natural, some man-made. Tell students to divide the items into two groups-one natural, one man-made.

4) Ask students to explain how they decided what was natural and what was man-made.

5) Identify the objects for the students, explaining what is natural and what is man-made.

6) In groups, have students discuss the ways they might be able to tell if an item is natural or man-made.

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# Dry Spell

**Assessment:**

- Did students develop criteria for deciding what was natural and what was man-made?
- Were students taking a critical look at the objects?

**Extension:**

- Read "If You Are a Hunter of Fossils" by Byrd Baylor.
- Students can determine the difference between a rock and a fossil.

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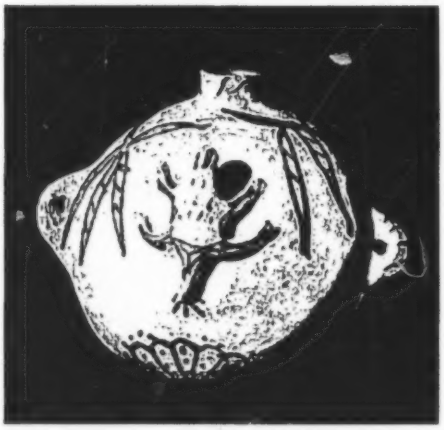
# Liquid Rocks



**Activity:** Forming stalactites and stalagmites

**Focus Activity:** Look at the art print of the Water Canteen (Cochiti). Discuss why water is important for people, plants and animals. Then, discuss the importance of water in shaping the earth: canyons, arroyos, deltas, etc..

**Outcomes:**

1. Students will understand that some rocks can be dissolved in water.
2. Students will observe the process that forms stalactites and stalagmites.

**Vocabulary:** dissolve, stalactite, stalagmite, evaporate, crystals

**Materials:** Epsom salts, 2 small jars, string (24 inches long), masking tape, *water, 2 small pebbles, *paper

**Procedure:**

1) Fill both jars with Epsom salts. Explain that Epsom salts are a mineral similar to many minerals found in nature.

2) Add water to the top of the Epsom salts (warm water works best).

3) Stir to dissolve as much of the salts as possible.

4) Tie a rock to each end of the string.

5) Place one end of the string with the rock attached in one bottle of salt solution, and the other end in the other bottle of solution.

6) Allow the string between the bottles to sag until it is only about one inch above the table. Place a piece of paper on the table, between the two jars and under the sagging string.

7) Place the jars in a draft-free location where students can view it undisturbed for a week.

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8) Call the students' attention to the experiment, periodically explaining that the water is going along the string and evaporating. As the water evaporates, it leaves the minerals behind. The same thing happens in caves where the rainwater seeps through cracks in the roof of the cave and absorbs small particles of calcium carbonate. As the water evaporates, it leaves the calcium carbonate in the form of stalactites and stalagmites. Although this experiment takes only a week, in nature this process may go on for thousands of years. Thus some stalagmites (growing from dripping on a surface) and stalactites (deposits hanging from above) are very large.

9) Students should keep a log, recording the changes they observe.

**Assessment:**

- Do the students' logs explain that the minerals are left when evaporation occurs?
- Do the students' logs reflect an understanding of the process--that minerals are being dissolved in water?

**Extension:**

- Students can grind rocks into small particles and try to dissolve them in water.

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# Rock Museum

**Activity:** Establishing a rock museum

**Focus Activity:** Look at "Awatovi Mural" by Pablita Velarde (Santa Clara). Discuss again how Velarde makes some of her colors by crushing rocks and soil and mixing the powder with white glue. What kind of rocks do the students think would be special for this artist? Why?

**Outcomes:**

1) Students will learn to look critically at rocks using specific criteria.

**Vocabulary:** criteria, attribute, museum

**Materials:** "Rock Collecting" by Roma Gans, *butcher paper, *marker, *egg cartons

**Procedure:**

1) Read "Rock Collecting" by Roma Gans. With the students, make a chart of the different kinds of rocks and the different colors of rocks mentioned in the book. Use the butcher paper and marker to make the chart.

2) Talk to the students about museums. Explain that a museum is a place where people are able to see and learn about a particular subject. Since it would not be possible to have everything in one museum, most museums have rules about what will be collected and exhibited. Suggest to the students that you are going to have a rock museum in your classroom.

3) As a class, or in small groups, discuss what kinds of rocks you would want in the class museum collection and what rules you would need to write in order to decide if a particular rock qualifies. For example, one group might only want to have white rocks. Another group might suggest only igneous rocks. A third group might suggest collecting and identifying rocks that have been made into something else: chalk, key rings, paperweights, etc..

4) If the students have worked in groups, it will be necessary to come back together as a class and discuss your decisions. Come to a consensus.

5) Tell the students that their homework assignment over the next several weeks is to bring in a rock that meets the requirements of their museum. Children should bring in the rocks and display them in egg cartons.



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6) Have the students write labels for their museum: including an introduction explaining exactly what is in the museum; identification of each item in the museum and where it was collected; and finally, a closing label mentioning what additional information is available about rocks but which is not included in this museum.

**Assessment:**

- Help the students go through the rules that the class has developed for the museum to see if each rock meets those requirements.

**Extension:**

- Invite another class into your classroom to visit the rock museum.
- Have students develop a guided tour of the museum to encourage their public speaking skills.
- Ask students to write a newspaper report about their museum.
- Instead of selecting only one theme for the rock museum, create a changing exhibit program in the rock museum using the different ideas suggested by the students.
- Ask students what other types of museums they can create in their classroom. Possible museums could be a museum of containers, fasteners, writing implements, etc..

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